TECNOFREEZE SRL

Continuous Freezer Mod. CF 400

Technical Instructions

Serial No.

Drawn up by the Technical Office of
TECNOFREEZE SRL

Technical specifications may be changed without notice.

General Index Page

Guarantee

By the present we are certificating that TECNOFREEZE guarantee that its product/s is/are free from defects imputable to bad construction or defective construction materials.

TECNOFREEZE refuse any responsibility linked to either vices or hidden defects found on commercial components, even if supplied by primary national and international Companies, but not made by TECNOFREEZE.

For such an occasion, in case they occur, TECNOFREEZE will arrange to turn the Customers the Guarantee exactly like supplied by the component makers and to give the right assistance to users.

The parts either to repair or to replace will have to be sent from the Customer to our premises, at Customer's charge, only after our guarantee acceptance.

What the guarantee covers

The guarantee covers the cost of the replacement of the defective parts, either of their repair or of their replacement with equivalent parts, according to the agreement of each case.

What the guarantee does not cover

The present guarantee does not apply to either damaged parts or damaged products either during transport, installation or repair or for improper usage, overload, negligence, inadequate lubrication, normal wear and tear , usage of unoriginal TECNOFREEZE spare part, either for any other improper usage or accident or carelessness by following the instructions of the present operation and maintenance manual.

The guarantee is not applicable if the user uses the product in an irresponsible way or if some modifications have been carried out on the product, that according to TECNOFREEZE, may have occasioned or worsened the damage either if some seals may be removed or the setting values have been modified.

This guarantee does not cover any other casual charges, consequential or incidental expenses such as shipping charges of the spare parts sent under guarantee, travelling charges for servicing staff, extraordinary charges due to difficult access of the machinery installed, loss of profit, waste of time, damage to other parts or goods other than TECNOFREEZE's products provided for herein.

TECNOFREEZE do not authorize a third party to take any other responsibilities in relation to the sale of their own products, besides what expressly indicated herein.

Guarantee Period

The guarantee period begins from the delivery date to the first owner /user.

TECNOFREEZE guarantee the machine for a period of twelve months as for the mechanical components, and for six months as for the electrical part.

Operations carried out before delivery

Before leaving the factory, all the products are carefully tested to make sure that they fulfil TECNOFREEZE quality standard and specifications.

Product Modifications

TECNOFREEZE reserve the right to carry out modifications to the products made and sold at any time and without notice and without any obligation to update the products previously manufactured or sold.

TECNOFREEZE

Strada degli Spinedi, 22/24 tel. 0039-0382-77554

fax 0039-0382-754884
27010 MIRADOLO TERME (PV) – ITALY

CE

Model	Kw.
Serial No.	V.
Year	Hz.
Cycles	Kg.
Quantity	Freon Gas

The machine shall be linked to an electrical plant equipped with a safety switch and meeting the requirements fixed by the safety standards applicable.

CHAP.3 – TECHNICAL DESCRIPTION OF THE MACHINE

The continuous freezer is fully built in stainless steel with detachable lateral panels that allow an easy access inside for cleaning, inspection and maintenance.
The main body includes:

- freezing barrel (Fig.A - Pos.1)
- mixture pump, air valve and speed variator group (Fig.B - Pos. 1)
- DASHER drive geared motor (Fig.A - Pos.2)
- compressor and relative refrigerator circuit (Fig.A - Pos.3)
- electric circuit (Fig.C - Pos.1)
- hydraulic circuit (Fig.A - Pos.4)
- control board (Fig.B - Pos.2)
- stainless steel AISI 304 frame and panels

On the front part of the machine are mounted:

- air/mixture pump (Fig.B- Pos.1)
- pump speed control hand-wheel (Fig.B- Pos.3)
- hot gas flow regulation hand-wheel (Fig.B-Pos.4)
- safety valve (Fig.B-Pos.5)
- ice cream mixture pressure gauge (Fig.B-Pos.9)
- control board with relative instruments (Fig.B-Pos.2)

All the electric control appliances for machine operation are contained inside the upper carter.
Every switch or warning light indicates its own function in the upper part.
For the control of machine operation the control board has also been provided with:

- an ammeter that indicates the absorption of the beater motor, of the shaft, therefore the product hardness in the barrel.

  The ammeter is equipped with a maximum amperage that can be set by the operator so as to check the ice cream consistency (Fig.E- Pos.1)

- a stroke counter that indicates the number of strokes per minute of the ice cream mixture suction pump (Fig.E- Pos.2)

- a gauge of Freon gas expansion (Fig.E- Pos.4)
- a gauge of Freon gas condensation (Fig.E- Pos.3)

On the back of the machine are mounted:

- a pipe fitting for condensation water inlet (Fig.D- Pos.1)

- a pipe fitting for condensation water outlet (Fig.D- Pos.2)

The inlet and the outlet are marked by small adhesive plates.

TECHNICAL FREEZER DATA

Model	**CF200**	**300**	**400**	**600/2****	**800/2****
Ice cream production lt/h *	200	300	400	600	800
Max overrun at steady state*	100 %	100 %	100 %	100 %	100 %
Compressor HP	3	5	7.5	5+5	7.5+7.5
Dasher motor HP	3	4	5.5	5.5+5.5	5.5+5.5
Pump motor HP	1	1	1	1+1	1+1
Well water consumption lt/h	400	700	850	1400	1700
Tower water consumption lt/h	820	1480	1880	2960	3760
Mixture inlet temperature ° C	+4	+4	+4	+4	+4
Mixture outlet temperature° C	-6	-6	-6	-6	-6
Refrigerant gas R	R404A	R404A	R404A	R404A	R404A

Dimensions: Model	**CF200**	**300**	**400**	**600/2****	**800/2****
- Width mm	1450	1650	1650	1650	1650
- Length mm	730	730	730	960	960
- Height	1620	1620	1620	1620	1620
- Total electric power Kw	6	8.5	10.5	17	21

* with overrun 100 %
** with double refrigeration barrel

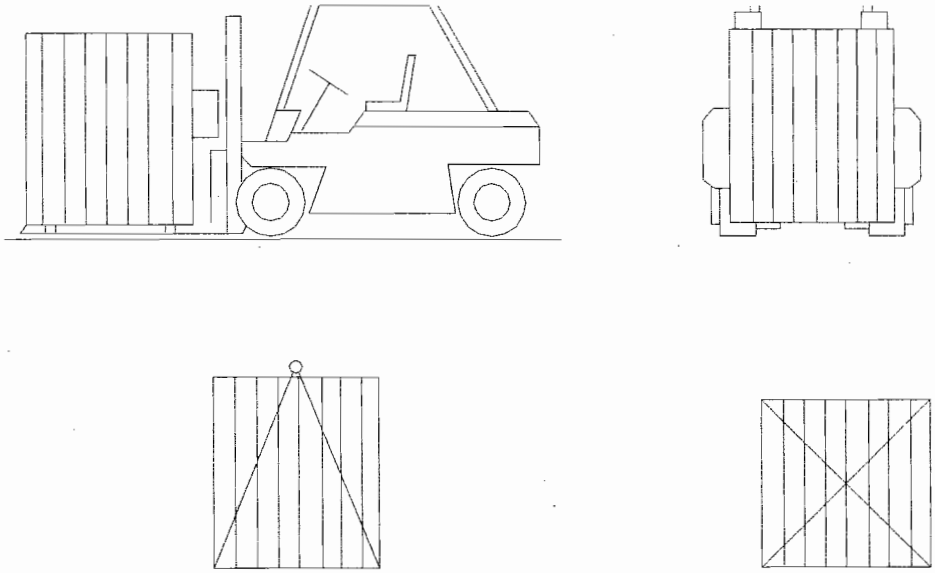
CHAP.4 – Structures and Access Ways (Ergonomy)

The machine is so dimensioned that it does not need any means of access , if its usage complies with its geometrical dimensions.
Should the user ,owing to its dimensions, for his/her own needs use the machine on a raised position, it will be up to him/her to see about the matter.
The machine is equipped with 04 (Four) adjustable feet for the positioning on the floor.

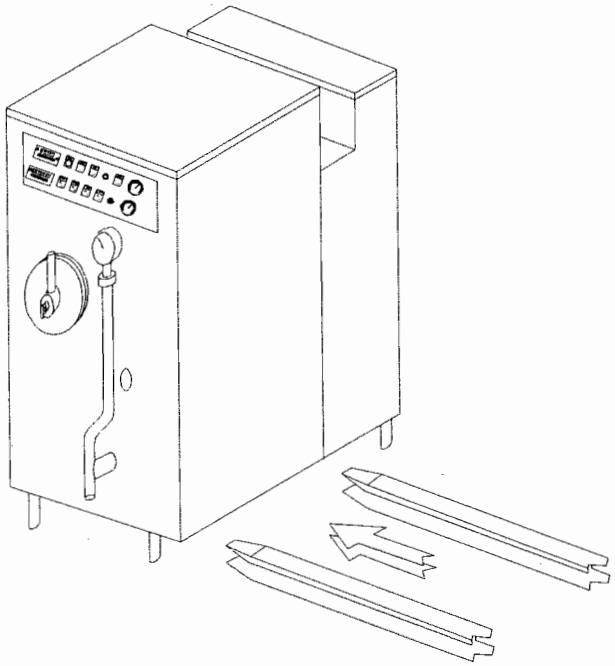
CHAP.5 – Movement and Machine Installation

The total mass of the machine is indicated in the table hereunder and you will have to consider that in the choice of the lifting means, as well as in the evaluation of the place where it will be installed.
In no case the manual handling will have to be allowed.
The staff carrying out handling operations will have to wear some protective gloves and some accident-prevention shoes with metal toe. They will also wear some clothes offering no hooking points to the protruding parts of the machine.
If the machine handling is carried out by crane or travelling bridge crane, these will have to have a load capacity suitable to the machine lifting , it is compulsory to foresee the rope or belt fixings (Ref.2).

For the lifting of the machine in its package (Ref.1) it is sufficient to use a fork lift truck, as indicated.

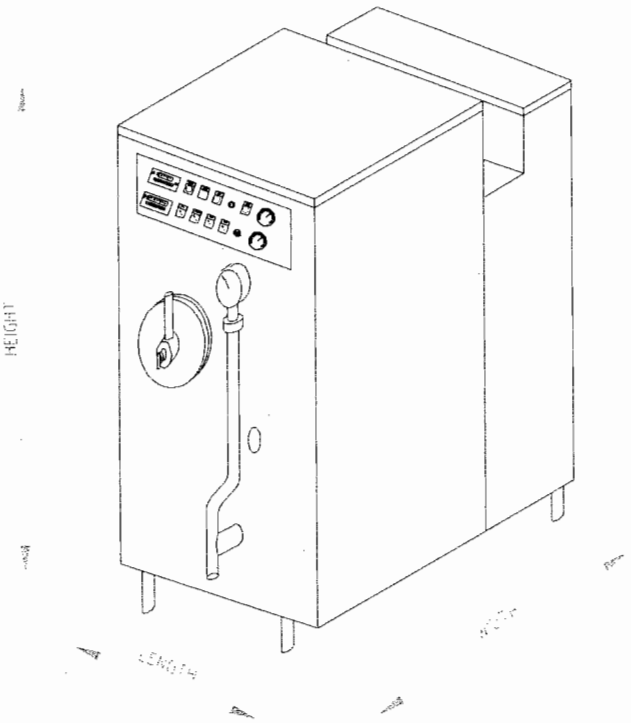


For the lifting of the machine without package, start the handling by a fork lift truck as indicated in figure (Ref.3)



DIMENSIONS AND WEIGHT OF THE MACHINE

(Measures in mm)



Model	200	300	400	600/2	800/2
Width	1450	1650	1650	1650	1650
Length	730	730	730	960	960
Height	1620	1620	1620	1620	1620
Weight Kg.	Kg.320	Kg. 450	Kg.500	Kg.850	Kg.950

CHAP.6 – SAFETY GEARS: TEST AND SETTING

- Place the machine in the assigned position and make it level by acting on the adjustable feet
- Fix the general switch with the relative thermal and magneto-thermal cut-out on the wall and then connect it to the feeding electric network.
- Make sure that the mains voltage corresponds to what the machine has been arranged.
- Remove the side panels and check the rotation direction of the shaft motor corresponds to that indicated by the arrows. In any case the beater must rotate clockwise .
- Remove the adhesive tape that fixes the scraper blades to the beater.(For the beater extraction wear protective gloves).
- Remove the locking brackets from the compressor.

CHAP.7 - INSTRUCTIONS FOR USE AND SETUP BEFORE OPERATION

WARNING! The machine is sent with all the refrigeration circuit cocks set to working position. So for the start it is not necessary to adjust them.
Connect the well water piping to the pipe holding nozzle (Fig.D – Pos. 1) marked "ENTRATA" (INLET), connect the piping (Fig.D – Pos.2) marked "SCARICO" "OUTLET" to the draining pipe.
The connection pipes must not have the diameter inferior to those already mounted on the machine and pipe throttling shall also be avoided. When plates have not been fixed to the machine , the inlet pipe is that one on which the water flow control valve is mounted. (Fig. D – Pos. 3).
Never use any mixes that have a temperature exceeding +4°/+5° C .
If for any reasons beyond control mixture temperatures should exceed the above mentioned values , reduce the pump speed to minimum.

Operation
Turn the general wall switch on.
Before starting production arrange for the machine disinfection and cleaning. (See " Daily cleaning of the machine").

Connect the pump suction pipe (Fig.B – Pos. 7) to the mixture tank.
Switch on the machine through the main switch located on the front control panel (Fig.E- Pos.5).
Start the pump by operating on the switch (Fig.E – Pos.9), then adjust the delivery rate to minimum by rotating the hand -wheel (Fig.B – Pos.3)by reading the value on the control board (Fig.E- Pos.2).
When the mixture starts coming out from the pipe then stop the pump.
After stopping the pump press the pushbutton (Fig.E- Pos.8)to start the beater and rotate the hand-wheel (Fig.E – Pos.9)that starts the refrigerator compressor.
After these operations the mixture inside the barrel begins hardening.
The mixture hardness can be checked through the ammeter (Fig.C – Pos. 1) indicating the effort of the beater motor in proportion to the product hardness (4-5 Amp.).
When the mixture inside the barrel has reached the desired hardness start the pump again and adjust both the capacity and the air quantity to put into the product.

Air Regulation (Fig.B – Pos.8)
The mixture pump is provided with a special valve (Fig.B – Pos.8) that controls the air quantity to put into the product.
You get the regulation of such a valve by a knurled ring nut that is situated between the two springs of the valve itself.
By screwing down the ring nut the air quantity brought in increases, vice versa it reduces .
The operations to carry out are the following:

1) At the beginning of the hardening cycle when the barrel is full and the pump stops, close the air valve by unscrewing it.
2) When you start the pump and the products begins to come out of the pipe in a continuous way, begin opening the valve (Fig.B- Pos.8)by screwing down the knurled ring nut for about ¼ turn a time. After every adjustment wait for some minutes so that the product feels the effects of the new condition.

Keep in mind that, by opening the air valve excessively , the product might come out of the machine in a discontinuous and irregular way with the formation of air bubbles inside.
In such a case reduce the air quantity brought in.
For homogenized and balanced mixtures, the overrun obtainable is 100% and over. Obviously mixtures with features different from the standard ones will give lower overrun values and these values will be proportional to the quality of the mixtures.
When the pump does not suck properly this can be due to:

- The suction pipe is not airtight;
- The gaskets are worn;
- The ball valve that leaks;
- The mechanical operation is improper.

Therefore when the pump gives symptoms of improper operation check:

a) that the suction piping connected to the entry (Fig.B- Pos.7) has not any leaks from which air may get in;
b) the efficiency of the gaskets, especially the gasket inside the barrel; in case replace it;
c) that the valve (Fig.F – Poss.2 and 3) located in the head of the pump closes well and that the seat is not worn; in case replace the ball.

CHAP.8 – INSTRUCTIONS FOR THE MAINTENANCE

At least every two hundred hours of operation check the oil in the pump speed reduction gear, add, if necessary (Fig.A- Pos.6) oil for reduction gears.
For the assembling and disassembling of the pump and of the air valves see Fig.F.
By screwing the adjustment screw(Fig.F- Pos.1) the pressure in the freezing barrel increases by the air incorporation with the mixture (Overrun).
In any case never tighten the screw (Fig.F- Pos-1)to its maximum limit, the excessive pressure increase in the barrel can cause troubles to the mechanical parts of the machine.
The control board instruments (Fig.E)allow to follow the different stages of the operations.
The ammeter (Fig.E- Pos.1) indicates the absorption of the dasher motor and therefore the product consistency.
The expansion pressure gauge (Fig.E – Pos.4) follows the work conditions of the compressor motor unit and if the unit functioning is regular it should indicate a suction temperature of –27 / - 30 °C, when the machine is in production.
The valve (Fig.B – Pos. 5) is a safety valve and it discharges the mixture in case the pressure in the barrel increases excessively. A knurled ring nut allows to increase the valve spring pressure.

REMARK- The sequence of dasher and compressor starting operations can not be inverted, as there is an electric safety lock that prevents it.
The freezer compressor, during the ordinary machine operation, may also stop for the following reasons:

1) the low pressure switch has tripped (Fig.C – Pos.3) that is when the refrigeration units in the return circuit exceed the requirement and the product temperature tends to become too low. The compressor will start again automatically as soon as the temperature increases inside the barrel.
2) the Ampere absorption has reached the maximum set value , it will start again automatically as soon as the absorption value decreases.

The refrigeration plant is equipped with a defrosting device with hot gas. Such a device needs only for emergency cases, that is either when electric power goes out or when for any reason the mixture pump stops.
In these cases the product , remaining inside the circuit longer than necessary, either will get cold or it will harden in such a way to cause the dasher mootr block.
Therefore, under such conditions it is necessary to stop the beater and the compressor motors immediately and turn on the switch (Fig.E – Pos.6) that controls the hot gas solenoid valve (Fig.A- Pos.5), wait for about a minute, then turn the switch off (Fig.E – Pos.6) to interrupt the defrosting action and close the register by rotating the flow adjusting valve knob (Fig.B – Pos.4).
After that the machine is ready to resume the production.
When you want to get only partially hardened mixtures as in the case of ice cream used either for the production of extruded products or stick products with a relatively low production speed, you use the defrosting device as a choker in the following way:

1) Set the machine to production and adjust the pump speed so as to get the desired production .
2) Close the on-off valve manually (Fig.B – Pos.4).
3) Turn the switch button (Fig.E – Pos.6) to open the hot gas solenoid valve.
4) Open the flow adjusting valve (Fig.B – Pos.4) slowly till you get the desired product consistency.

Daily Machine Cleaning

Without starting the compressor, operate the pump and suck either 15 or 20 Litres of water at 30/40° C max mixed with a neutral detergent , leave pump and beater on until the water has been sucked.

Repeat the operation with plain, clean and cold water to rinse. After the second operation, stop both pump and beater and unscrew the pipe-fitting (Fig.B- Pos.8) of the pump delivery pipe so as to discharge all the water still remaining in the barrel.
Periodically it is necessary to disassemble and clean thoroughly all the parts of the pump and of the machine that are in contact with the mixture, replace the worn gaskets if necessary ; for reassembling refer to Figures F/G.

Scraper Blade Cleaning
The scraper blades of the freezer are in AISI 420 martensitic stainless steel with predetermined hardness, so after washing the blades with a detergent solution and rinsing them thoroughly with water , dry them with a dry cloth, or better with compressed air, spread either with alimentary oil or with Vaseline.
This simple operation prevents blades from getting stained.
The products used to clean and sanitize must not corrode the mechanical parts they come into contact with.
To get a more rational cleaning you can disassemble the beater and the rear breech, as shown in Fig.G.
To disassemble the beater, remove first the front breech, then the support ring; extract the complete beater from the barrel by paying attention not to scratch the blades on the barrel, they must be extracted from their seats.
To disassemble the rear breech proceed in the following way:
- remove the back-pressure assembly 1-9 (Fig.G – Pos.1-9);
- remove the Dasher (Fig.G – Pos.15) (see chapter 10- Risk Evaluation);
- disassemble by means of a hook wrench the pipe union that links the breech to the mixture delivery pipe;
- rotate the breech by a ¼ turn clockwise and then extract it;
- extract the fixed part of the rotating seal by exerting a slight pressure from outside inwards (Fig. G – Pos.19)
- remove the O ring OR (Fig.G – Pos.20);
- proceed to the cleaning with lukewarm water and detergent, reassemble all the components by following the reverse procedure and by taking care to lubricate either with alimentary oil or Vaseline.

After cleaning make sure that the seal ring (Fig.G – Pos.18)mounted on the dasher slides freely, and that the scraper blades are perfectly fitted on their positioners. Place the complete beater assembly into the barrel carefully by

paying attention to insert it into its seat . Reassemble the front breech (Fig.G – Pos.9)by positioning the centering ring into its suitable seat.(Fig.G – Pos.11).

- WHEN YOU REASSEMBLE THE BEATER ALWAYS USE THE PLASTIC RING WITH CONICAL GROOVE SUPPLIED WITH THE MACHINE: THIS WILL PREVENT BARREL EDGES FROM GETTING DAMAGED.

MECHANICAL MAINTENANCE

The maintenance of the mechanical parts consists of:

- a) Control of the bushings, in which the shaft turns , if they are worn replace them
- b) Check of the scraping blades that must be settled on their tines so that they can not come out during operation. If the scraping blade cutting edge presents any imperfections have the blades either sharpened or replaced.
- c) Control of the rotating seal situated at the end of the dasher (Fig.G- Pos.18). The rotating seal (Fig.G – Pos.18) has a hard metal inserted seat that, pressed by a spring (Fig.G – Pos.17) slides against the face of the fixed counterseal (Fig.G – Pos. 19).

These two surfaces must always have a mirror finish, otherwise the mixture comes out from the back of the barrel.
In order to make the two surfaces smooth use fine-grained emery and rub them first against a very hard plane (glass) and then one against the other in the same way that you do to emery the valves.
If the O rings are worn replace them.

- d) Control of the reduction gear: check periodically that there is oil in the reduction gear.

The control takes place through the oil window situated on a side of the reduction gear itself, a probable filling up takes place through the special oil cap (Fig.A – Pos.6).

ELECTRIC PLANT

The electric plant has been so conceived as to protect the machine components at maximum.
Should one or more motors stop, before carrying out any interventions in the electric plant, remove the machine panel and make sure that the thermal cutouts have not tripped.

If so, reset them manually.
If only the compressor motor stops ,check both the thermal cutout and the pressure switch (Fig.C- Pos.3) this could have its contacts open or it could be out of order.
These operations must be carried out before intervening on the electric plant.
For maintenance and possible repairs we recommend you to apply to either an electrician or a refrigeration engineer.

REFRIGERATION PLANT

The freezing plant must be checked and possibly repaired only by a reliable refrigeration engineer.
The causes of the faulty operation of the refrigeration plant can be:

1) Insufficient condensation.
2) Thermal expansion valve (thermostat) either incorrectly rated or out of order.
3) Line filter either dirty or clogged.
4) Solenoid valve (Fig.A – Pos. 5)either jammed or closed.
5) Gas shortage in the plant.

The insufficient condensation may be due to:

- a) Water shortage coming from the mains.
- b) Flow control valve (Fig.D – Pos.3) is badly rated.

In the first case make sure that all the line cocks carrying the water to the machine are open and that the water flows to the machine regularly.
To adjust the water flow control valve act on the screw (or cap) situated on the head of the valve itself.
If the valve is properly rated, the temperature of the outlet water going when the compressor is working will have to range between about +30 and + 35 ° C.

CHAP.9- INSTRUCTIONS FOR REPLACEMENT OF PARTS SUBJECT TO WEAR

The parts subject to wear and therefore to a periodic replacement, are:

- all the O rings, particularly those relative to the pump in the piston sliding seat and to the rotating seal, for this reason a set of gaskets is supplied as equipment;
- the air valve springs;

- the fixed part of the rotating seal;
- the dasher scraper blades.

These parts are to be tested periodically and if in bad condition, they have to be replaced.

CHAP. 10 – RISK EVALUATION AND CORRECT WAYS FOR THEIR REMOVAL

- RISK OF INJURY DURING SIDE ACCESS TO THE BEATER
- RISK OF INJURY DURING BEATER EXTRACTION FROM THE BARREL.

It is necessary to wear some protection gloves to avoid cutting your hands, compatibly when you extract or replace the dasher.
Light thick-knit cotton gloves are the kind of glove advised.

- RISKS FOR SCARCE ILLUMINATION IN THE WORKING AREA.

In the working area illumination should be of 800 lux at least, under conditions of ordinary cleaning.

- ACCUMULATION OF ELECTROSTATIC CHARGES

Provision shall be made to disperse the electrostatic charges.

- RISK OF ACCIDENTAL BEATER STARTING

Some special mechanical locks are arranged to prevent the beater from being started accidentally through a proximity switch before the barrel cap has been reassembled.
In order to avoid the risk of injury for the operator it is necessary that,
before starting any interventions, it is compulsory to CUT OFF the current to the control board.

CHAP. 14 – MANUAL OF THE RECOMMENDED SPARE PARTS

Set of pneumatic gaskets.
Set of mechanical gaskets.
Recommended lubricants.
Recommended lubricating and refrigerating fluids for the refrigeration plant.
(See enclosed spare part chart).

CHAP. 15 – STORAGE OF THE MACHINE

In case of storage of the machine, it must be kept in a shielded and dry place so as to protect above all of the electrical and electronic equipment mounted inside it.
In the case either a long storage or non-use period of the machine is expected (more than 7 days), it is compulsory the disassembly of the pumping pistons inside the compressor head, to avoid that they themselves, by remaining into static contact with the relative CH gaskets, they may get damaged.

FIGURE A

Position	Description
1	BARREL
2	DASHER – Electric Motor
3	COMPRESSOR
4	HYDRAULIC CIRCUIT
5	GAS SOLENOID VALVE
6	WATER CONDENSER
7	REAR BREECH
8	PUMP SPEED VARIATOR

FIGURE "A"

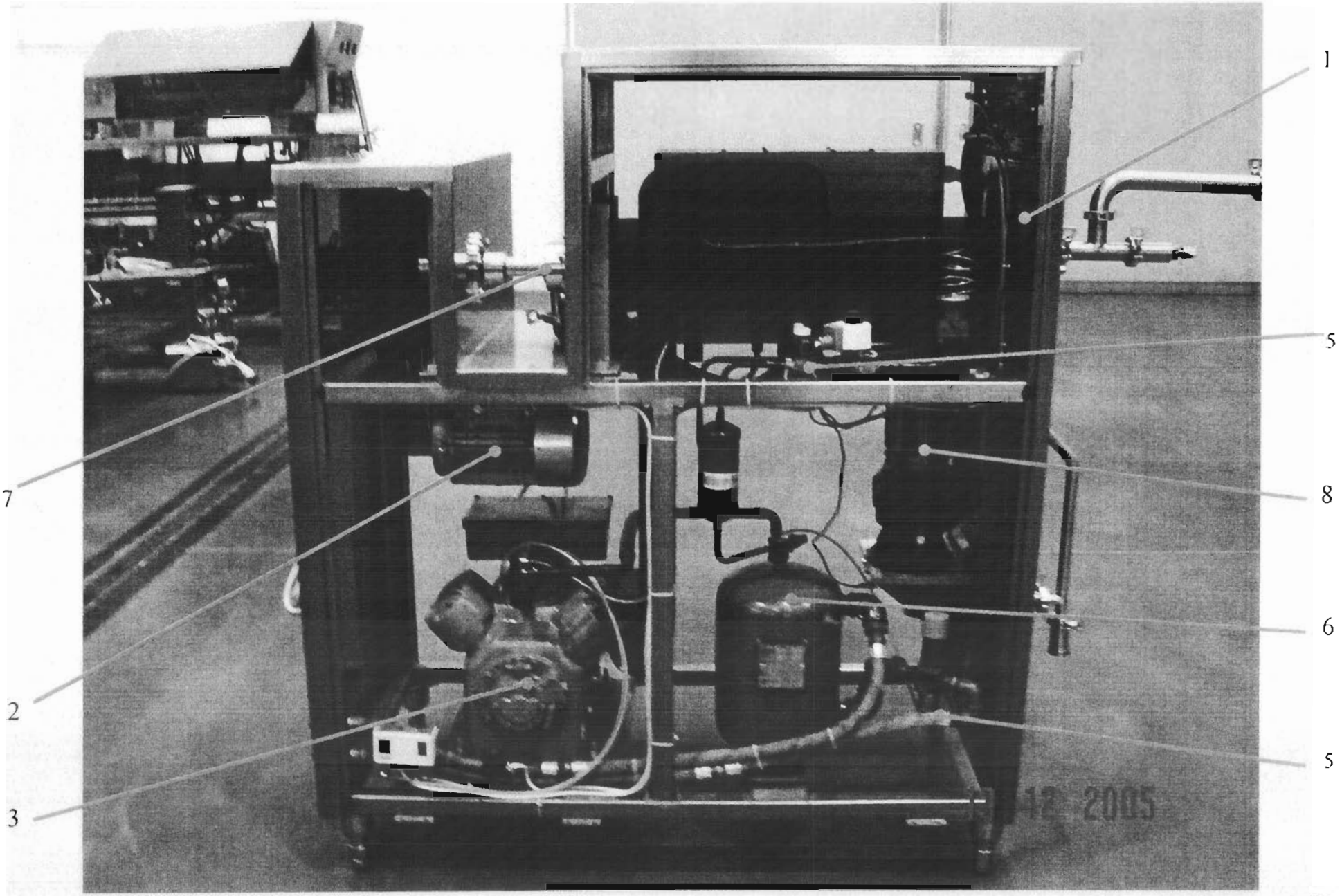


FIGURE B

Position	Description
1	AIR MIXTURE PUMP
2	CONTROL BOARD
3	PUMP SPEED HAND-WHEEL
4	HOT GAS POTENTIOMETER
5	SAFETY PRESSURE VALVE
6	BACK PRESSURE HAND-WHEEL
7	MIXTURE SUCTION HOSE PIPE
8	AIR VALVE
9	MIXTURE PRESSURE GAUGE
10	REFRIGERATING PRESSURE GAUGES

FIGURE "B"

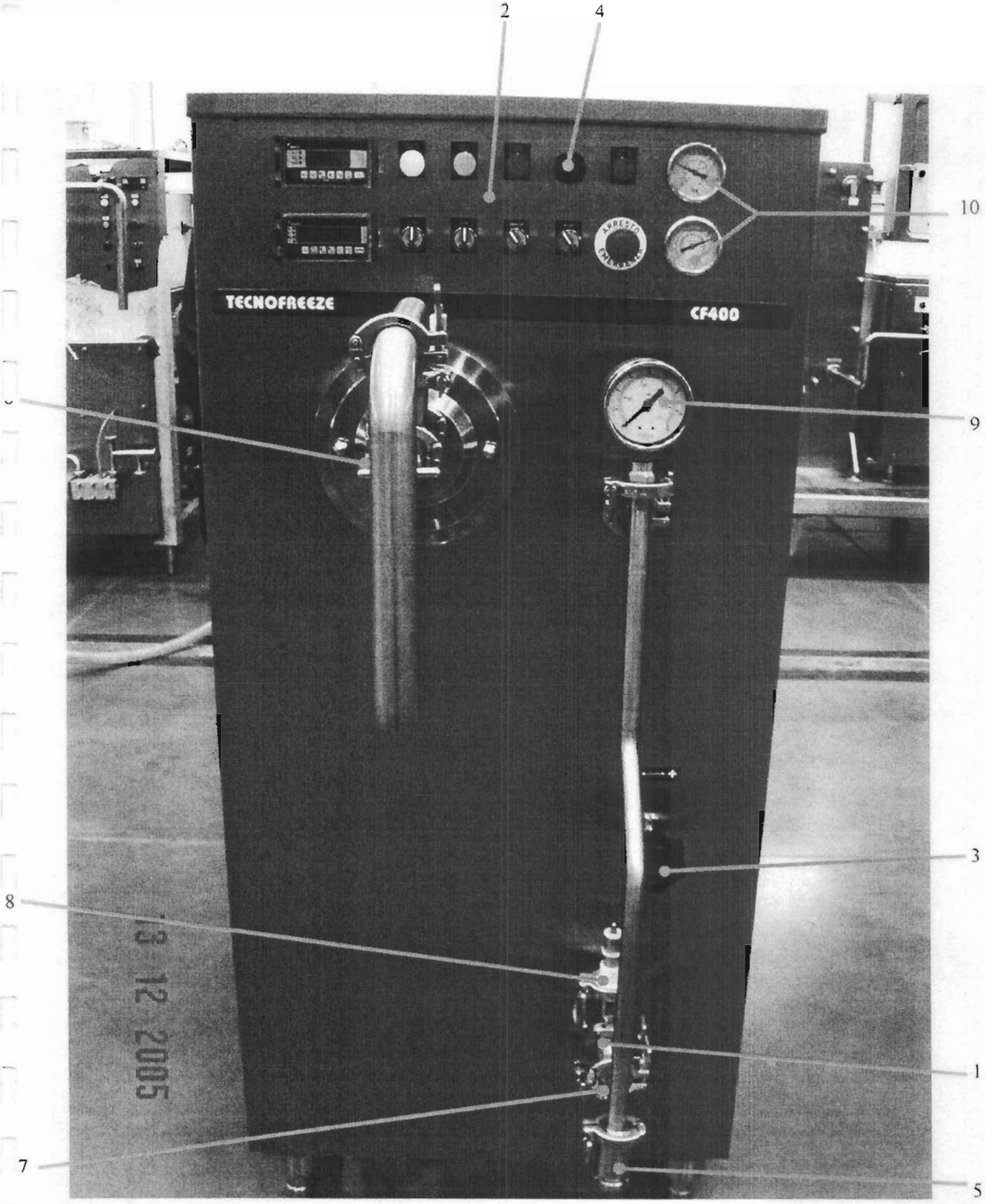


FIGURE C

Position	Description
1	ELECTRIC CONTROL BOARD
2	CONTROL BOARD
3	PRESSURE CUT OUT SWITCH
4	MAIN POWER WIRE

FIGURE "C"

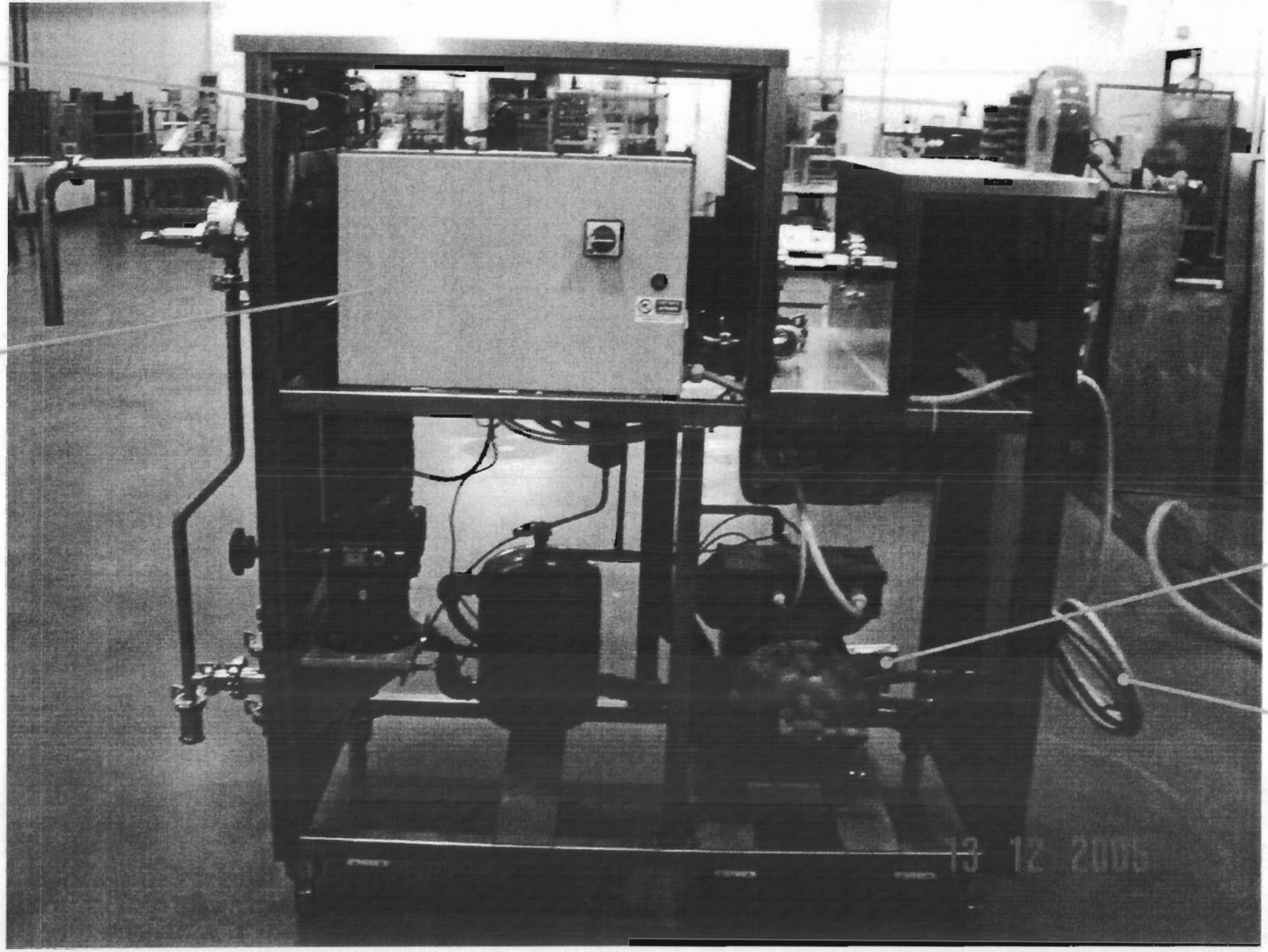


FIGURE D

Position	Description
1	WATER INLET
2	WATER OUTLET
3	AIR FAN
4	NAME PLATE

FIGURE " D"

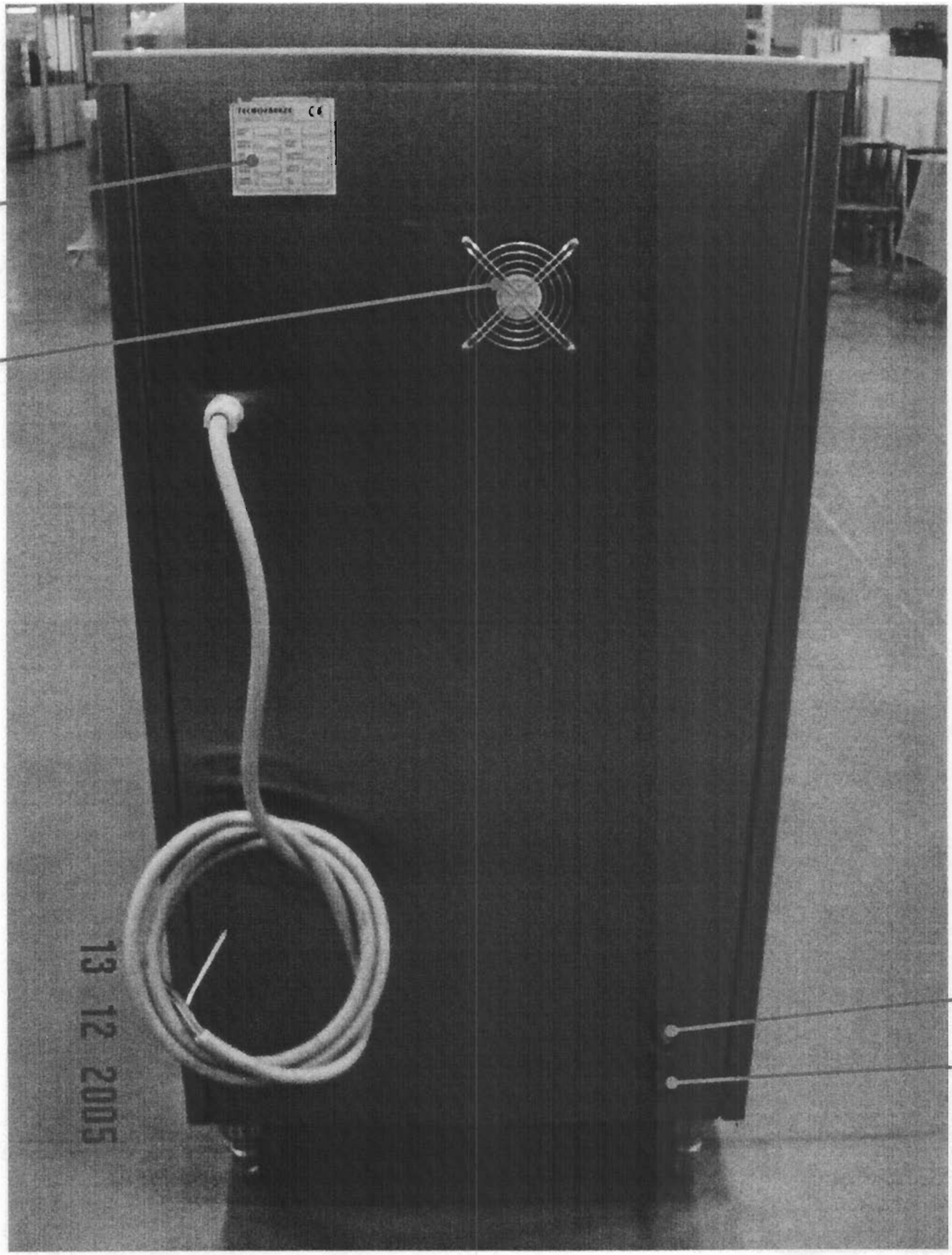


FIGURE E

Position	Description
1	AMMETER
2	PUMP SPEED DISPLAY
3	CONDENSATION PRESSURE GAUGE
4	EXPANSION PRESSURE GAUGE
5	HOT GAS POTENTIOMETER
6	HOT GAS SWITCH
7	PUMP START PUSH-BUTTON
8	DASHER START PUSH-BUTTON
9	COMPRESSOR START PUSH-BUTTON
10	AUXILIARY CIRCUIT ON
11	THERMAL RELAY TRIPPED
12	PILOT LAMP HARDNESS CONTROL
13	EMERGENCY PILOT LAMP ON
14	EMERGENCY PUSH-BUTTON

FIGURE "E"

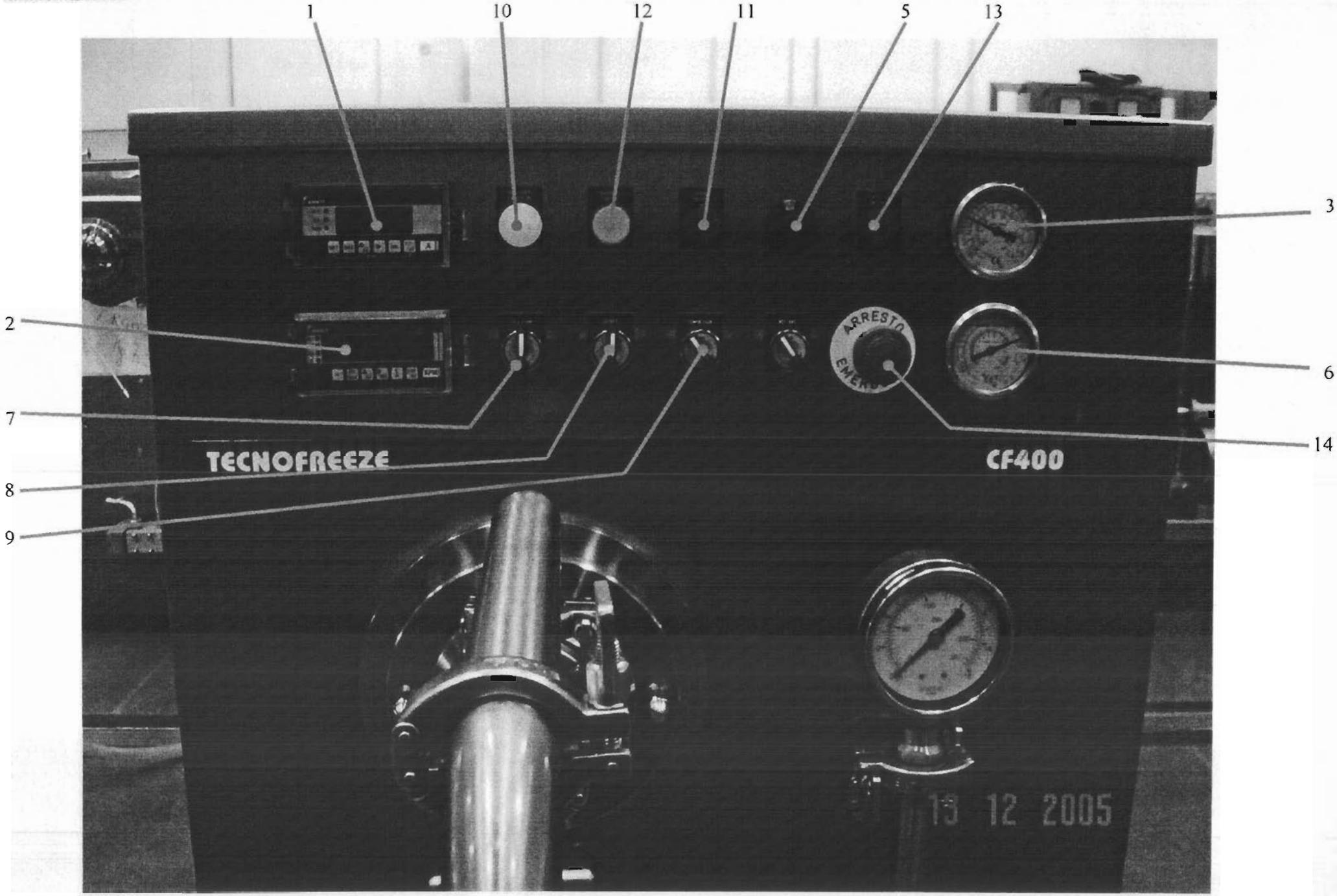
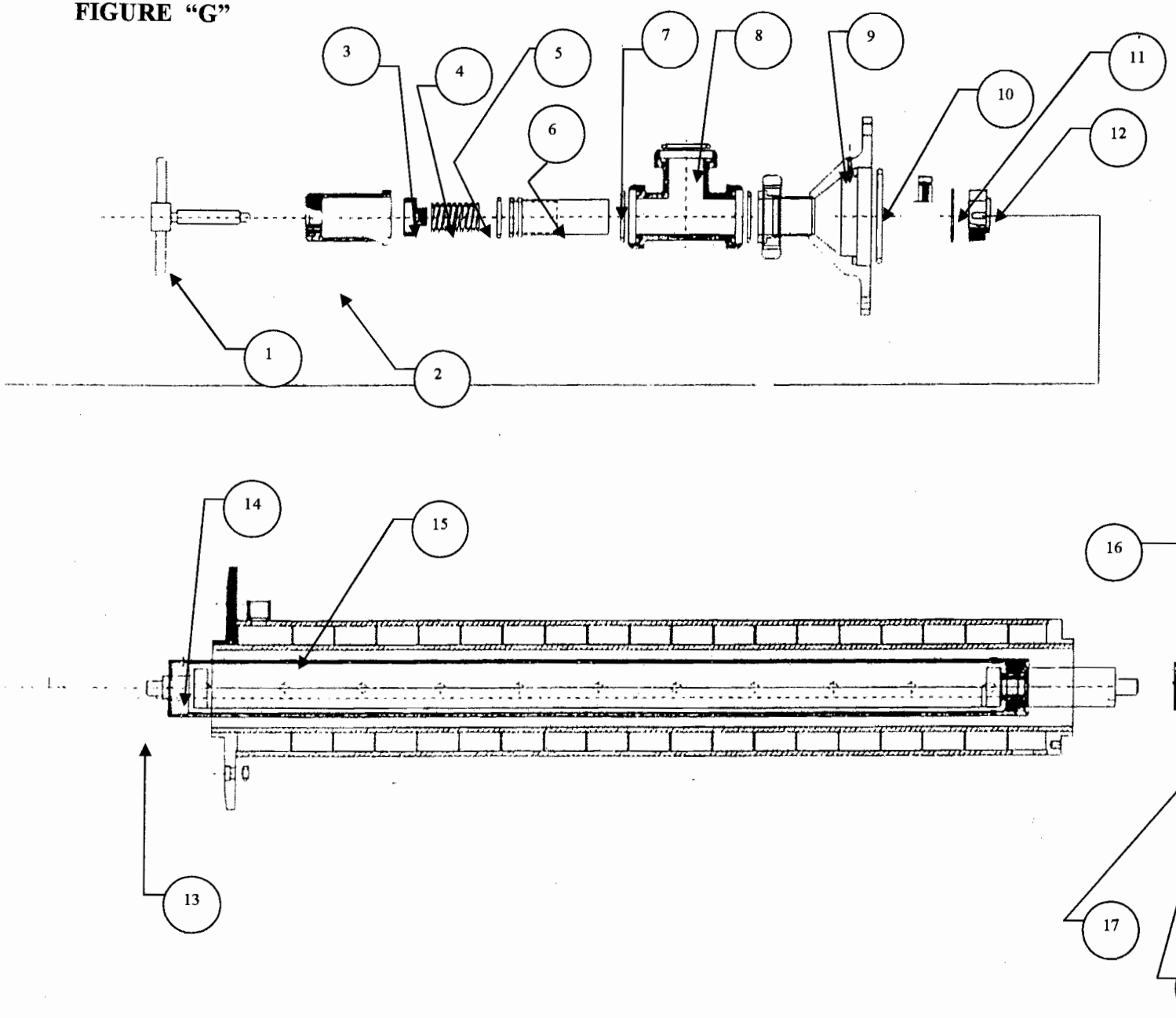


FIGURE G

Position	Description
1	BACK PRESSURE REGULATOR
2	BACK PRESSURE HOUSING VALVE
3	BACK PRESSURE SPRING HOLDER
4	SPRING
5	OR 4131
6	PISTON
7	GASKET DN 40
8	TEE DN 40
9	FRONT BREECH
10	OR 189
11	SEEGER
12	FRONT BUSHING
13	DASHER WHIPPER
14	DASHER
15	BARREL
16	ROTATING SEAL SPRING
17	ROTATING SEAL
18	FIXED SEAL
19	OR 6200 OR 6162
20	REAR BREECH
21	SHAFT BUSHING
22	MOTOR SHAFT

FIGURE "G"



1) BACK PRESSURE REGULATOR
2) BACK PRESSURE HOUSING VALVE
3) BACK PRESSURE SPRING HOLDER
4) SPRING
5) OR4131
6) PISTON
7) GASKET DN 40
8) TEE DN 40
9) FRONT BREECH
10) OR 189
11) SEEGER
12) FRONT BUSHING
13) DASHER WHIPPER
14) DASHER
15) BARREL
16) ROTATING SEAL SPRING
17) ROTATING SEAL
18) FIXED SEAL
19) OR 6200 OR 6162
20) REAR BREECH
21) SHAFT BUSHING
22) MOTOR SHAFT

SPARE PART CHART

LIST OF OR FOR CF 150 and CF 300

POS.	DESCRIPTION	Q.TY ASSEMBLY	RECOMMENDED SPARE PART	Q.TY	UNIT PRICE
01	MECHANICAL SEAL (Fig.G – pos.17-18-19-20)	01	Fixed Seal Diam.40 Rotating Seal Diam.40 OR 3200 OR 6162	 01 01	
2	AIR VALVE (Fig.F – pos.17-23)	01	Complete Valve Set of Gaskets OR 3068/115 OR 112	 01 01	
03	MIXTURE PUMP (Fig.F-pos.1-10)	01	Set of Gaskets OR 4137 (Piston 300) OR 4100 (Piston 150) OR 144 (Piston 400)	 01 01 01	

	PUMP HEAD 400 PUMP HEAD 300 PUMP HEAD 200		OR 4175 OR 4150 OR 216	01 01 01	
4	BACK PRESSURE ASSEMBLY(Fig.G – pos.1-8)	01	Set of Gaskets OR 4125 1 " ½ SIL.	 01 03	
05	DASHER (Fig.G – pos.15)	01	Scraper Blades	02	
06	Front Breech	01	OR 6412/346	01	
07	Rear Breech (Fig.G – pos.10-21)	01	OR 4375/240 OR 4337	01 01	
8	Rear Flange Barrel	01	OR 4337	01	
09	Barrel Front Breech	01	OR 3650	01	

TRANSMISSION UNIT

REF.	NAME	CODE
1	DRIVEN PULLEY	FZ16B31001
2	DRIVING PULLEY	FZ16B31002
3	BELT TYPE A 52	
4	SAFETY RING	FZ16B61001
5	GASKET TYPE A 526812	
6	FRONT CAP FOR DUCT SHAFT	FZ16B14002
7	GASKET TYPE OR 3650	
8	GASKET TYPE AS 40558	
9	SEEGER TYPE E40	
10	BEARING TYPE 6008-2RS1	
11	BEARING TYPE 6209-2RS1	
12	SEEGER TYPE I 85	
13	SUPPORT DUCT SHAFT	FZ16B14001
14	REAR COVER FOR DUCT SHAFT	
15	ELECTRIC MOTOR SUPPORT TYPE TC 112	
16	TAP TYPE 10X8X60 UNI 6604-69	
17	ELECTRIC MOTOR TYPE ST 100 L S4	
18	MAIN SUPPORT FLANGE	FZ16B01001
19	DUCT SHAFT	FZ16B17001
20	FEATHER KEY TYPE 8X7X40 UNI	

TECNOFREEZE

LIST OF MATERIALS

ABBREVIATION	DESCRIPTION	ITEM	MANUFACTURER
QS0105	MAGN. switch 4x32A	24951	N.Magrini G.
	Accessories for rotary manoeuvre	27046	N.Magrini G.
	Rotary manoeuvre	27047	N.Magrini G.
QF0108	Bipolar Automatic Switch 2A Curve C-10KA (C60N)	24264	N.Magrini G.
TC0108	One-phase transformer 100 VA 22-380/12-24V	2EETM3410	N.Magrini G.
QF0108A	Unipolar Automatic Switch 6A- Curve C-10KA (C60N)	24239	N.Magrini G.
QF0112	Bipolar Automatic Switch 4A – Curve C-10KA (C60N)	24266	N.Magrini G.
	Auxiliary Contact	26924	N.Magrini G.
QF0116	Bipolar Automatic Switch 4A – Curve C-10KA (C60N)	24266	N.Magrini G.
QM0204	Tripolar Thermomagnetic Switch 1,6-2,5A – 100KA	GV2 M07	Telemecanique
	Auxiliary Contact	GV2 AE11	Telemecanique
QM0208	Tripolar Thermomagnetic Switch 6-10A – 100KA	GV2 M14	Telemecanique
	Auxiliary Contact	GV2 AE11	Telemecanique
TA0208	Ammeter Transformer 25/5A		Commercio
PA 0211	Board Ammeter	S1T	Mect
QM0216	Tripolar Thermomagnetic Switch 13-18A – 100KA	GV2 M14	Telemecanique
	Auxiliary Contact	GV2 AE11	Telemecanique
B0302	Ø 40 mm Red Mushroom Rotation Push-Button	ZB2 BS54	Telemecanique

	Auxiliary Contact Body 1NO+1NC	ZB2 BZ105	Telemecanique
L0302	Direct Feeding Lamp Holder	ZB2 BV6	Telemecanique
	Red Gem	ZB2 BV04	Telemecanique
L0304	Direct Feeding Lamp Holder	ZB2 BV6	Telemecanique
	White Gem	ZB2 BV01	Telemecanique
L0306	Flashing Direct Feeding Lamp Holder	ZB2 BV181	Telemecanique
	Yellow Gem	ZB2 BV01	Telemecanique
HL0308	Direct Feeding Lamp Holder	ZB2 BV6	Telemecanique
	White Gem	ZB2 BV01	Telemecanique
SA0309	Unsteady Three-Position Green Lighting Selector	ZB2 BK153	Telemecanique
	Lighting Direct Feeding Operator	ZB2 BW061	Telemecanique
	Auxiliary Contact Body 1NO	ZB2 BZ101	Telemecanique
	Auxiliary Contact Body 1NC	ZB2 BZ102	Telemecanique
KM0309	Counter 9A	LC1 D0910B7	Telemecanique
L0311	Direct Feeding Lamp Holder	ZB2 BV6	Telemecanique
	White Gem	ZB2 BV01	Telemecanique
A0312	Unsteady Three-Position Green Lighting Selector	ZB2 BK153	Telemecanique
	Lighting Direct Feeding Operator	ZB2 BW061	Telemecanique
	Auxiliary Contact Body 1NO	ZB2 BZ101	Telemecanique
	Auxiliary Contact Body 1NC	ZB2 BZ102	Telemecanique
M0312	Counter 9A	LC1 D0910B7	Telemecanique
KM0314	Based Relay 2NA + 2NC	NAHC2-H-24Vac	
	Base for Relay	NAHC2SFD	
HL0315	Direct Feeding Lamp Holder	ZB2 BV6	Telemecanique
	White Gem	ZB2 BV01	
HL0316	Direct Feeding Lamp Holder	ZB2 BV6	Telemecanique
	White Gem	ZB2 BV01	Telemecanique
SA0317	Steady Two-Position Green Lighting Selector	ZB2 BK123	Telemecanique
	Lighting Direct Feeding Operator	ZB2 BW061	Telemecanique
KM0317	Counter 18A	LC1 D0910B7	Telemecanique
	Auxiliary Contact 2NO	LA1-DN20	Telemecanique

	Block		
SA0402	Steady Two-Position Green Lighting Selector	ZB2 BK123	Telemecanique
	Lighting Direct Feeding Operator	ZB2 BW061	Telemecanique
PC0408	Revolution Meter	CGA 65 - 03	Mect
SQ0408	Proximity Stroke End for Revolution Check	MB 8/1	Mect